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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/031,377

04/12/2002

Mutsumi Suzuki

NITT.0057

9511

7590

12/13/2005

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EXAMINER

NGUYEN, KEVIN M

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Interview Summary

Application No.

10/031,377

Applicant(s)

SUZUKI ET AL.

Examiner

Kevin M. Nguyen

Art Unit

2674

All participants (applicant, applicant's representative, PTO personnel):

(1) Kevin M. Nguyen.

(3) \_\_\_\_\_.

(2) Juan Carlos A. Marquez.

(4) \_\_\_\_\_.

Date of Interview: 09 December 2005.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 1, 2, 11, 12, 16 and 17.

Identification of prior art discussed: Sarrasin.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner agreed the proposed amended claims 1, 2, 11, 12, 16 and 17 as attached herewith overcome the rejection under 35 USC 102 (b) as being anticipated by Sarrasin, in the Office action dated 08/07/2005. However, the amendments to these claims raise new issues that would require further consideration and/or search. Therefore, the proposed amendment will not be entered.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

From Juan Marquez / Jennifer Tong (703-641-4206)  
for interview purpose

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re U.S. Patent Application of**

SUZUKI et al.

**Application Number: 10/031,377**

**Filed: April 12, 2002**

**For: AN IMAGE DISPLAY AND A DRIVING METHOD OF THE SAME**

**ATTORNEY DOCKET NO. NITT.0057**

Unit 2674

**Examiner**  
**Nguyen, Kevin M.**

**Honorable Assistant Commissioner  
for Patents  
Washington, D.C. 20231**

**RESPONSE AND AMENDMENT UNDER 37 C.F.R. §1.111**

Sir:

This is in response to the office action dated August 9, 2005, in the above identified application, the period for response is set to expire on December 9, 2005, with a one-month extension fee filed herewith. Please amend the above-referenced application as follows:

**IN THE CLAIMS:**

Please amend claims 1-2, 11-12 and 16-17 as follows:

1. (Currently Amended) An image display comprising:

a display device including,

a first plate having,

a plurality of electron-emitter elements each having a structure comprised of a base electrode, an insulating layer and a top electrode stacked on one another in this order, said electron-emitter element emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;

a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the electron-emitter elements lying in [[a]] the row (or column) direction, of said plurality of electron-emitter elements, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the electron-emitter elements lying in the column (or row) direction, of said plurality of electron-emitter elements;

a frame component; and

a second plate having phosphors;

wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum;

first driving means for supplying driving voltages to said respective first electrodes; and

second driving means for supplying driving voltages to said respective second electrodes;

wherein said first driving means sets the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state.

2. (Currently Amended) An image display comprising:

a display device including,

a first plate having,

a plurality of electron-emitter elements each having a structure comprised of a base electrode, an insulating layer and a top electrode stacked on one another in this order, said electron-emitter element emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;

a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the electron-emitter elements lying in ~~[[a]]~~ the row (or column) direction, of said plurality of electron-emitter elements, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the electron-emitter elements lying in the column (or row) direction, of said plurality of electron-emitter elements;

a frame component; and

a second plate having phosphors;

wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum;

first driving means for supplying driving voltages to said respective first electrodes; and

second driving means for supplying driving voltages to said respective second electrodes;

wherein said first driving means sets the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state, and

wherein said second driving means sets the second electrode held in a non-selected state to a state of having an impedance higher than that of the second electrode held in a selected state.

3. (Original) An image display according to claim 1, wherein said high impedance is an impedance of  $1\text{M}\Omega$  or more.
4. (Original) An image display according to claim 1, wherein said first driving means brings a first electrode held in a non-selected state to a floating state.
5. (Original) An image display according to claim 2, wherein said second driving means brings a second electrode held in a non-selected state to a floating state.
6. (Original) An image display according to claim 1, wherein said each electron-emitter element includes a top electrode busline which is electrically connected to the top electrode and functions as the second electrode.
7. (Original) An image display according to claim 1, wherein said first electrode functions as the base electrode of said each electron-emitter element.
8. (Original) An image display according to claim 1, wherein said base electrode comprises a metal.
9. (Original) An image display according to claim 1, wherein said base electrode comprises a semiconductor.
10. (Original) An image display according to claim 1, wherein said insulating layer comprises a multi-layer film of a semiconductor and an insulator.
11. (Currently Amended) A driving method of an image display comprising:  
    providing an image display having:  
        a first plate having,  
        a plurality of electron-emitter elements each having a structure comprised of a base electrode, an insulating layer and a top electrode stacked on one another in this

order, said electron-emitter element emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;

a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the electron-emitter elements lying in ~~[[a]]~~ the row (or column) direction, of said plurality of electron-emitter elements, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the electron-emitter elements lying in the column (or row) direction, of said plurality of electron-emitter elements;

a frame component; and

a second plate having phosphors;

wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum; and

setting the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state.

12. (Currently Amended) A driving method of an image display comprising:

providing an image display having:

a first plate having,

a plurality of electron-emitter elements each having a structure comprised of a base electrode, an insulating layer and a top electrode stacked on one another in this order, said electron-emitter element emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;

a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the electron-emitter elements lying in ~~[[a]]~~ the row (or column) direction, of said plurality of electron-emitter elements, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the electron-emitter



elements lying in the column (or row) direction, of said plurality of electron-emitter elements;

a frame component; and

a second plate having phosphors;

wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum;

setting the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state; and

setting the second electrode held in a non-selected state to a state of having an impedance higher than that of the second electrode held in a selected state.

13. (Original) A driving method according to claim 11, wherein said high impedance is an impedance of  $1M\Omega$  or more.
14. (Original) A driving method according to claim 11, further including the step of bringing the first electrode held in the non-selected state to a floating state.
15. (Original) A driving method according to claim 12, further including the step of bringing the second electrode held in the non-selected state to a floating state.
16. (Currently Amended) An image display comprising:
  - a display device including,
  - a first plate having,
  - a plurality of thin-film electron emitters each having a base electrode and a top electrode, said each thin-film electron emitter emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;
  - a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the thin-film electron emitters lying in [[a]] the row (or column) direction, of said plurality of thin-film electron emitters, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the thin-film electron emitters lying in the column (or row) direction, of said plurality of thin-film electron emitters;

a frame component; and

a second plate having phosphors;

wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum;

first driving means for supplying driving voltages to said respective first electrodes; and

second driving means for supplying driving voltages to said respective second electrodes;

wherein said first driving means sets the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state.

17. (Currently Amended) An image display comprising:

a display device including,

a first plate having,

a plurality of thin-film electron emitters each having a base electrode and a top electrode, said each thin-film electron emitter emitting electrons from the surface of the top electrode when a voltage of positive polarity is applied to the top electrode;

a plurality of first electrodes extending in a row (or column) direction for respectively applying driving voltages to the base electrodes of the thin-film electron emitters lying in ~~the~~ the row (or column) direction, of said plurality of thin-film electron emitters, a part of each of the first electrodes forming said base electrode; and

a plurality of second electrodes extending in a column (or row) direction for respectively applying driving voltages to the top electrodes of the thin-film electron emitters lying in the column (or row) direction, of said plurality of thin-film electron emitters;

a frame component; and  
a second plate having phosphors;  
wherein a space surrounded by said first plate, said frame component and said second plate is brought into vacuum;  
first driving means for supplying driving voltages to said respective first electrodes; and  
second driving means for supplying driving voltages to said respective second electrodes;  
wherein said first driving means sets the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state, and  
wherein said second driving means sets the second electrode held in a non-selected state to a state of having an impedance higher than that of the second electrode held in a selected state.

### REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated August 9, 2005. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

### Status of the Claims

Claims 1-17 are under consideration in this application. Claims 1-2, 11-12 and 16-17 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicants' invention.

All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

### Prior Art Rejections

Claims 1-2, 4-12 and 14-17 were rejected under 35 U.S.C. § 102(b) on the grounds of being anticipated by US Pat. No. 5,600,343 to Sarrasin (hereinafter "Sarrasin"), and claims 3 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sarrasin. These rejections have been carefully considered, but are most respectfully traversed.

The image display of the invention (for example the embodiment depicted in Figs. 6-10), as now recited in claim 1, comprises: a display device including, a first plate 14 (Fig. 8) having: a plurality of electron-emitter elements 301 (Fig. 10) each having a structure comprised of a base electrode 13, an insulating layer 12 and a top electrode 11 stacked on one another in this order, said electron-emitter element 301 emitting electrons from the surface of the top electrode 11 (as shown in Fig. 8) when a voltage of positive polarity is applied to the top electrode 11; a plurality of first electrodes 310 (Fig. 10) extending in a row (or column) direction for respectively applying driving voltages to the base electrodes 13 of the electron-emitter elements 301 lying in the row (or column) direction, of said plurality of electron-emitter elements 301, a part of each of the first electrodes 310 forming said base electrode 13; and a plurality of second electrodes 311

(also the to electrode busline 32; Fig. 10) extending in a column (or row) direction for respectively applying driving voltages to the top electrodes 11 of the electron-emitter elements 301 lying in the column (or row) direction, of said plurality of electron-emitter elements 301; a frame component; a second plate 110 (Fig. 8) having phosphors 114; wherein a space surrounded by said first plate 14, said frame component and said second plate 110 is brought into vacuum; first driving means 41 (Fig. 10) for supplying driving voltages to said respective first electrodes 310; and second driving means 42 (Fig. 10) for supplying driving voltages to said respective second electrodes 311. The first driving means 41 sets the first electrode 310 held in a non-selected state to a state of having an impedance higher than that of the first electrode 310 held in a selected state.

Claim 2 recites all the elements in claim 1, and further recites "wherein said second driving means 42 sets the second electrode 311 held in a non-selected state to a state of having an impedance higher than that of the second electrode 311 held in a selected state".

The invention is directed to a driving method of an image display comprising: providing the image display recited in claim 1 or claim 2, setting the first electrode held in a non-selected state to a state of having an impedance higher than that of the first electrode held in a selected state (claims 11-12), and setting the second electrode held in a non-selected state to a state of having an impedance higher than that of the second electrode held in a selected state (claim 12).

The invention recited in claims 16-17 is also directed to an image display comprising the image display recited in claim 1 or claim 2, but instead of "electron-emitter elements each having a structure comprised of a base electrode, an insulating layer and a top electrode stacked on one another in this order" incorporating "thin-film electron emitters each having a base electrode and a top electrode."

Applicants contend that none of the cited prior art references teaches or suggests such "a plurality of electron-emitter elements 301 each having a structure comprised of a base electrode 13, (an insulating layer 12) and a top electrode 11 stacked on one another in this order, said electron-emitter element 301 emitting electrons from the surface of the *top electrode* 11 (as shown in Fig. 8) when a voltage of positive polarity is applied to the top electrode 11 according to the invention.

In contrast, Sarrasin's row electrode 10 and column electrode 8 merely correspond to the

first electrode 310 and the second electrode 311 of the invention, rather than to the base electrode 13 and the top electrode 11 of the invention, which are part of electron-emitter elements 301. See attached Explanatory Table.

Sarrasin's microtip 16 was relied upon by the Examiner to teach the electron-emitter elements 301 of the invention. However, Sarrasin's microtip 16 does not have a base electrode 13 which forms a part of the first/row electrode 310 (Fig. 8) as the electron-emitter elements 301 of the invention.

Applicants contend that Sarrasin fails to teach or suggest each and every feature of the present invention as disclosed in the independent claims 1-2, 11-12 and 16-17. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

#### Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely. Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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Stanley P. Fisher  
Registration Number 24,344

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Juan Carlos A. Marquez  
Registration Number 34,072

**REED SMITH LLP**  
3110 Fairview Park Drive, Suite 1400  
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(703) 641-4200

**November 17, 2005**

**SPF/JCM/JT**

# Explanatory Table

Claims 1 & 11	Sarrasin
electron-emitter element 301	microtip 16
First electrode 310	row electrode 10
second electrode 311	column electrode 8
insulating layer 301	insulating layer 12
electron-emitter element each having a structure comprised of base electrode 13 insulating layer 12 top electrode 11	No correspondence found
electron-emitter element emitting electrons from the surface of the top electrode 11	No correspondence found
No correspondence found	the row electrode 10 having holes from which the microtips emerge,.... (col. 8, 456)